Chart #1 (Title): IBM's On Demand Transformation: Reinventing the Enterprise

- I'm delighted to be here to talk about IBM's transformation to an on demand e-business.

- In many respects, IBM's **experiences over the past decade are similar** to the experiences of countless other enterprises around the world.

- We set out to use **network technology to transform our entire business.** e-business transformation has enabled us to improve productivity, strengthen relationships with customers, suppliers, partners and employees, and respond faster to changes in the marketplace.

- Now, we're building on past successes and tackling the next challenge: **building an on demand enterprise** that operates at the speed of the market's and our employees' demands. The **on demand IBM** will be not only more efficient and faster to respond, but a **qualitatively different kind of enterprise**.

- We've learned that e-business transformation results in **measurable business benefits**, that the maximum benefits come **from integrating technologies into reengineered processes**, and that transformation is an **ongoing, all-encompassing strategy** -- not a collection of stand-alone Web projects.

- As we tackle the challenge of on demand transformation, we'll have to achieve totally new levels of integration: of processes and applications and employees inside the business; of suppliers and distributors and customers outside.

Chart #2: Agenda

- In this presentation, I'll talk about:

- **Understanding the e-business journey:** Briefly, the path to the network era and the evolution of e-business from its early stages through to the next phase: the on demand era.

- **IBM's Transformation:** How IBM's transformation efforts over the past decade - particularly with the adoption of e-business -- have fueled IBM's comeback in the industry.

- **The on demand era:** e-business is moving into a new phase -- e-business on demand -- with new challenges and new opportunities. This is the emerging model in which IBM, and all companies, must pursue in their transformation efforts.

  Just like e-business, moving to on demand is a journey. We've made early headway in some areas, and are beginning to expand into other areas. I'll touch upon a few of these.

- **Lessons learned**: Make no mistake, transformation is hard work, and IBM's experience is no exception. I'll share a few lessons we've learned along the way, and offer some advice on how to begin, or accelerate, your transformation.

Chart #3: Enterprises Everywhere Are Embracing e-business...

- Many businesses we talk to feel burned by the Internet euphoria of the late 1990s, when too often the top priority was not "how should we transform?" but "when can we start?" **The rush to e-enable led many businesses to make hasty investment decisions.**

- Today, initial dot-com delirium has given way to **sober, tenacious pursuit of real business value.**

- The data on this chart -- from the US Commerce Department -- demonstrates how enterprises have **made IT an integral part of business over the past 40 years**.

- The history of the IT industry has been defined by **three computing eras: the centralized era, the client/server era, and the networked or e-business era**. And those, in turn, have been driven by larger changes in the nature of business. Over that period, we have seen customers continuously increase investment in IT as a percentage of their capital assets. Notice the surge in IT investment whenever customers embrace a new way of computing.

- Enter IBM's System/360, which launched the **centralized era** of information technology in business. In this era, the prevailing business strategy was **automation of back office processes**, and the computing model was all about **centralized computing. In other words, mainframe computing.**

- That period lasted for about 20 years, and it drove dramatic new business efficiencies. However, in most large organizations, people spent a much of their time marching to the dictates of centralized systems and processes.

- Enter the personal computer. By the mid-80s and early 90s, the **PC and client/server** revolutions had taken hold--enabling individuals to manage many of their daily tasks more quickly, and accelerating the staffing shift in many companies toward knowledge workers over clerical workers. The computing model supported the **stand-alone applications and processes** that characterized this era.

- Now, we are moving into a new era, the era of a services-led global economy. In this new age, the old needs of businesses haven't disappeared -- but they are joined by a new set. **The main criterion for competitive success now is responsiveness**: the ability to adapt and respond rapidly to ever-more-volatile demand, coming from an ever-wider global marketplace.

- We are now in the early stages of the **network era**. Enterprises are focused on **integrating diverse processes** (legacy and new), transforming the entire enterprise,

creating new business models, and realizing business value such as increased profitability and measurable ROI.

- In the network era, our customers are continuing to demand e-business and are striving to **realize the full value of enterprise integration.**

- Let me expand on this integration point, because it's the essence of on demand transformation.

Chart #4: ...But Are Facing Tough Integration Challenges

- We **surveyed some 33,000 companies**, large and small, in 7 countries, IBM and non-IBM customers alike. We asked them **about their e-business capabilities and challenges**, and discovered that enterprises fall into three stages of e-business adoption.

- **Access stage** -- publishing or accessing information and doing simple transactions.

- **Enterprise integration stage** -- bringing together various processes and applications within the enterprise to improve their efficiency and effectiveness.

- **On demand stage** -- adapting dynamically as fully integrated, intelligent systems respond flexibly to changing requirements.

- There's a natural progression at work here -- enterprises are **constantly evolving and moving into more advanced stages**.

  - In our research, we found that:
    - Four out of five enterprises are at some stage of e-business adoption;
    - One out of two are in the access stage;
    - **One in three are in the enterprise integration phase.**
    - Less than five percent are in the advanced stage -- doing e-business on demand.

  - The **conclusions of the survey** are interesting:

    - We are on the cusp of the next phase of e-business -- the era of on demand business. That is the future.

    - With the bulk of customers in the early stages but moving toward the integrating stage, there's **an intense focus on integration**. Customers understand the real benefits and ultimate payoff from e-business involve the transformation and integration of the entire enterprise (all essential business processes -- pricing systems, inventory, logistics, credit, distribution, and so on).

Chart #5: TRANSITION: IBM's Transformation: A Decade of Change

Chart #6: We were on the verge of breakup

- Before we look at how IBM is transforming itself into an e-business on demand, it's important to note that our on demand transformation is only the most recent chapter in what's been a **compelling story of business transformation over the past decade.**

- To truly understand where we're going in the on demand era, **we need to understand where we've been.**

- IBM's reengineering efforts began out of necessity. From the late 1980s to the early 1990s, IBM suffered through a remarkably rapid fall from grace.

- **Signs of trauma were everywhere**: In 1993, our stock price had collapsed, hitting a 20-year low, and the company posted an $8.1 billion loss. In the early 90s, **our way of computing and our way of working with customers** were viewed as antiquated.
- What's more, we struggled under the weight of a **management structure that created independent business units with redundant processes and disconnected information systems**.

- With a plan to break up the company on the table, IBM hired Lou Gerstner as CEO in April 1993. **Gerstner realized that the value IBM offered to customers was its ability to provide end-to-end solutions to business problems.**

- So **Gerstner reversed course, and set a strategy to create a unified, integrated company**.

- Successful execution of this **"One IBM" strategy would require an intense focus on remaking IBM**. Without integrating internally, we could never realize the promise of an end-to-end solution provider strategy.

Chart #7: IBM undertook a major financial, competitive and cultural transformation
- In the early 1990's, IBM was a company in **dire need of simplification**. Initial transformation efforts, therefore, were focused on the simplification and reengineering necessary to stabilize the corporation.

- Recognizing that complexity lay at the root of many of its problems, IBM adopted a strategy of **streamlining its core business.** The emphasis was on **driving core processes across the company**

- Beginning in 1994 with cost reductions achieved through consolidation and standardization, to global deployment of reengineered process two years later, simplification yielded tremendous benefits.
- Over a five-year period, **customer satisfaction jumped 5.5 points**, **time to market became 75 percent faster**, and **total savings exceeded $9 billion.**

- Web enabling of core processes and internal systems began in 1998 and continues to unfold today.

- IBM's early transformation successes, however, also highlighted that self-contained or **"siloed" process reengineering limited crucial end-to-end integration** across the company.

- Simply streamlining processes and moving them to the Web, with little thought to where they fit into the big picture--and how they might influence other processes-- **did not address the need for complex cross-business initiatives--such as CRM and the integrated supply chain** -- that promised to fully leverage the size and scope of IBM.

- To accelerate IBM's transformation, **a new approach was needed** to deliver the standardization key to seamless integration with customers, partners, suppliers and employees, while still allowing the individual brands to win head-to-head competition in the marketplace.

- To achieve the full benefits of transformation and e-business, **IBM shifted to an end-to-end model -- taking those processes and turning them on their side**, and starting to integrate them, horizontally, end-to-end.

Chart #8: Processes were automated and reengineered

- Since 1994, IBM's e-business transformation efforts have realized **$16.5 billion in benefits from $5.6 billion of investment.**

- Our success to date would **not have been possible if we tried to simply Web-enable our processes.** Clearly, the first order of business was **simplification**. **Fragmentation and inefficiency in IT operations were rampant** -- pushing data processing costs to three times the industry average.

Example: Finance

- Finance suffered from many of the same maladies that afflicted the corporation at large: **bloat, bureaucracy and a lack of integration**.

- Our benchmarking work indicated that our Finance head count and spending (measured by expense-to-revenue ratios) were twice as high as the competition.

- Significantly, we **did not have a corporate-wide financial data strategy -- a clear detriment to our "One IBM" strategy**.

- Financial data was inconsistently defined in numerous disparate "country unique" systems.
- Information was difficult to find and often required manual manipulation and consolidation.

- Our financial analysts were spending at least 50 percent of their time collecting information.
- Because of the lack of commonality in financial data, we required 18 days to close the books on a financial quarter.

- We **focused our reengineering work on consolidating processes**.

- Financial operations expense fell to $1.3 billion in 1996 from $2.1 billion in 1994, even as total revenues grew.
- Our financial operations' expense-to-revenue improved to 1.5 percent from 3.2 percent.

Chart #9: Infrastructure and Governance were simplified

- Fragmentation was also evident in our application portfolio and infrastructure as well as our governance or **management structure**.

- An initial focus was placed on **reversing the unchecked proliferation of applications** throughout the company.

- An audit conducted at the start of the consolidation effort revealed approximately 16,000 applications were running within the company, and for one-third of those, we couldn't pinpoint an organization that was responsible for application maintenance.

- We were able to reduce our application portfolio from 16,000 to about 5,300 in just under ten years.

- But applications are just part of the story. **When we began our simplification push, we were operating 155 data centers around the world, along with 31 separate, private networks, and hundreds of different PC configurations.**

- **Since then, we've reduced the number of host data centers to 11 worldwide. Networks were reduced to one, and PC configurations to four.**

- **Over the last decade, IT spending has been cut by 31 percent**, even as our IT infrastructure grew to support new applications and processes, additional workload volume, and enhanced functionality.

- One of the key outgrowths of the simplification campaign was an **increased willingness to outsource IT services** -- including application development and integration and infrastructure management and deployment -- to IBM Global Services.

- **This decision has saved half-a-billion dollars to date.**

Chart #10: Relationships were transformed: Customers and Suppliers

- Our transformation efforts to date have also dramatically changed the way we go to market and service customers.

- In its early stages, ibm.com provided information about IBM's products and services, but was organizationally (not customer) driven.

- Today, ibm.com is an **integrated, robust place of business that allows customers to research, buy and receive support for 14,000 products, services and solutions.** ibm.com extends IBM's reach to new customers through the home page, which received more than 133 million visits last year.

- **CRM:** We **have integrated ibm.com with our telephone sales and support** operations to **enable such CRM features as Call Me Now, Text Chat, and Web-assisted buying**.

- **Fulfillment:** The transformation of our fulfillment processes has enabled us to **reduce the number of fulfillment applications worldwide by 42 percent**.

- **Procurement:** with e-procurement, **suppliers are able to receive forecasts and order, process invoices, and receive payment -- all without the use of paper.**

- **More than 90 percent of all IBM purchasing transactions are conducted "hands-free**" -- without the intervention of procurement buyers

- Inventory turnover has improved as a result of improved processes and shorter cycle times, **freeing up $1 billion in cash.**

Chart #11 The on demand era: looking ahead

- As extensively as we've transformed relationships with suppliers and customers thus far, **e-business on demand will take that transformation to a whole new level**.

- On demand is requiring us to respond in a new way to **suppliers, customers and employees**:

- Customers want products and services that are specific to their needs, and they want them **on demand**.

- Suppliers need to operate in tune with market fluctuations affecting pricing and logistics, and they need to be able to respond to those fluctuations **in real time**.

- And employees need access to information, applications and services on their own terms -- **when, where and how they choose**.

- As IBM brings e-business on demand to customers, we are practicing what we preach internally. **In 2003, IBM embarked on a major transformation effort to become the premier on demand enterprise. Linda Sanford, our Senior Vice President for Enterprise On Demand Transformation and Information Technology is leading this initiative.**

- There are three main focus areas of our transformation
  - Business Process transformation
  - IT enablement
  - Culture change.
- I'll touch on these in a moment.

Chart #12: Defining the next computing era

- IBM Chairman and CEO, Sam Palmisano, laid out his vision for the on demand era in the fall of 2002. As Sam explained, there will be a **premium placed on integration in this new era**, both within the enterprise and throughout the ecosystem in which a company operates.

- Making this transformation to on demand is a journey that **IBM has embarked on itself and with many of our customers.** IBM and other early adapters of on demand computing recognize there will be enormous competitive advantages for breaking out early and being the first to embrace on demand technologies and approaches.

So, this is how Sam Palmisano defined an on demand business. It's: **an enterprise whose business processes -- integrated end-to-end across the company and with key partners, suppliers and customers -- can respond with speed to any customer demand, market opportunity or external threat.**

What that ultimately means is seeing the world through the eyes of our customers, suppliers, shareholders and employees.

Think about our customers. When they are contemplating a buying decision they want access to research. They want to buy something, pay for it, install it, get support for it when needed.

Today, IBM can meet all of those requirements, but these are vertical processes. Our workflow is not integrated end-to-end across the enterprise. It's not seamless for the customer. We have to knock down the silos and change our own culture so we can deal across IBM on their behalf.

Becoming that kind of enterprise requires rethinking the processes, not just the technology, in order to add value to the business model.

This is the next evolution of our internal transformation.

Chart #13: On Demand Business Model

- One of the reasons IBM had so much credibility establishing the concept of e-business with customers is that we were **eating our own cooking** -- aggressively transforming ourselves into a leading e-business. Our learning made it easier to anticipate and solve the challenges our customers would face.

Moving to the on demand model requires **transformation work that targets business processes and an enterprise's IT infrastructure**.

In the early stage of e-business, the focus was on the transformation of individual vertical processes and applications.

In the on demand era, we will lead with cross unit horizontal business process transformation. The addition of the industry specific business process transformation skills we have acquired through our acquisition of PwCC give us a capability that is second to none in the industry.

In the era of on demand, **the focus shifts to building much tighter linkages and relationships among core business processes, and the applications that support them**. When change comes as rapidly as it is coming today -- and along as many different dimensions -- it isn't good enough to optimize process-by-process. **The entire enterprise has to be able to respond dynamically, and that requires cross-process integration.**

Chart #14: IBM's on demand transformation strategy

- IBM is working simultaneously on three fronts to drive our own transformation to on demand.

- In **business process transformation**, we're looking to raise the level of integration of key processes shifting from standalone vertical processes to processes that are horizontally connected across the enterprise and beyond the company's borders, to customers and suppliers.

- In IT enablement, the objective is to **move our technology infrastructure forward so that it's fully equipped to support that move -- to create an On Demand Operating Environment**.

- The other fundamental element of this transformation is **culture change** -- breaking down the silos within IBM to **encourage collaborative, dynamic cross-organizational working across divisions and processes**.

- **Business process transformation** will redefine processes, creating a new set of technology requirements. **IT enablement** will support the transformed processes.

This fusion of business process transformation and IT enablement will make IBM the industry's premier on demand business.

Chart #15: On demand transformation management

- As I mentioned, to drive our own transformation to an on demand enterprise, IBM has put in place a management team and structure to lead this initiative.

From a governance standpoint, here's how this initiative is being implemented:

- We are being very selective ... we've picked **four initial process areas for on demand transformation -- Integrated Supply Chain, On Demand Workplace, IT Enablement and the Total Buyer Experience**.

- Each process area has been assigned a champion -- an executive with operational know-how and a senior executive sponsor. Their results will be reviewed on an ongoing basis by Sam Palmisano and the Operating Team.

- Our overall business case is straightforward: Through this transformation, we want **to drive IBM to #1 in our industry in customer satisfaction, #1 in employee satisfaction, and achieve commanding market share** in each of our major businesses.

- We are also **engaging small groups of leaders from our customers, partners, suppliers and employees to tell us about the issues they are wrestling with** as they try to transform their own businesses, and give us feedback on our own transformation to on demand.

- Our executive team includes those who are managing the three areas of business process transformation, IT enablement and culture change.

- Finally, our existing CIO management system, with its **review boards for IT investments, architecture and technology boards and our system for linking IT and business transformation, continues to function** with the direction of the executive team.

Chart #16: On demand reinvestment cycle

So, for IBM, one of the questions we had to grapple with was, how are we going to fund this shift to on demand? Nobody these days can just go out with a laundry list and say we're going to do all of this at once. I'm not saying you can't do large pieces at one time. But you **need to be both selective and creative in how you leverage the efficiencies you gain as move along the path toward on demand**.

This is a model that we have been using for a number of years to fund some of IBM's e-business transformation investments.

- **We generate yearly efficiency and productivity gains** -- in our case it's through the IBM Global Account which we outsource to IBM Global Services.
- **We then reinvest these savings in our transformation initiatives**.

Now obviously it doesn't fund everything we do, but it is one way to make resources available and creates an iterative process that has worked well for us. These IT savings are planned -- they're literally written into our outsourcing agreement with IBM Global Services.

The other half of this cycle comes in the savings gained from larger business transformation initiatives. These savings should allow for more resources to be invested in IT initiatives, and the cycle goes on in an iterative fashion.

Chart #17: On demand operating environment

- To realize the benefits of on demand business, companies will need to **migrate their current computing infrastructure and architecture to a new one -- what we call an "on demand operating environment"** which will have **four essential characteristics:**
  1. **Integrated**
  2. **Open**
  3. **Virtualized**
  4. **Autonomic**

- Let's start with **operating environment requirement number one** -- **integration.**

- To be an **on demand business**, the **operating environment needs to be integrated** with **maximum flexibility** to **support and enable** the **world of integrated business processes** and **transactions** -- across the enterprise, often to **partners, suppliers and customers**.

- Web Services, new deployment tools and standards ease the integration of devices, data and business processes. Meanwhile, a new world of software--like **IBM's WebSphere**--for the **on demand operating environment** helps facilitate the integration of legacy systems and applications that can interact dynamically with one another without having to be re-engineered or rewritten.

- The **second requirement** for the development of an on demand operating environment: it must be **open.**

- The rise of **open standards** -- along with open source Software -- Linux or Grid protocols or Web Services -- is putting an end to control points. IBM is actively engaged in **many open standards initiatives**. We've **contributed significant resources** to the development of XML, SOAP, UDDI and other protocols ... with other companies

- Look at the extraordinary growth in Linux. IDC ranks Linux as the industry's fastest growing operating system. Linux shipments are projected to surpass Windows by 2006. Internally, we use Linux on over 1,200 servers.

- **The third requirement of the on demand environment is virtualization.**

- Most organizations today have plenty of computing power, but **it's highly distributed** within the enterprise. And it's grossly underutilized. The average corporate **Web server -- UNIX server only is at about 10 percent utilization**; **back-office servers at 40 percent**; **storage utilization is about 50-52%; and personal computers are doing nothing for 95% of a typical day.**

- Now there's an opportunity to virtualize the entire data center with an emerging technology called **Grid computing**. Just like the Internet, Grid is based on open technical standards and protocols. It lets a collection of distributed computing resources be shared and managed as if they were **one, large, virtual computer**.

- **The final requirement of the on demand environment is that it must be autonomic.**

- An **autonomic system**:
  - Actually knows itself; contains components that process a system
  - Always looks for ways to optimize itself
  - Configures and reconfigures itself under all kinds of conditions
  - Recovers from any event that might cause its part to malfunction
  - Knows its environment and acts accordingly

- **In 2001,** we delivered an **autonomic blueprint** for the industry and the academic community. We've introduced **autonomic capabilities into our systems and software** -- including our **Tivoli management software** and **database software** -- and we've added these features to our Shark storage systems.

- Bottom line, **autonomic will help hide the complexity of computing. It will simplify the experience and management of IT.**

IBM Delivers on Strategy

In May 2003, IBM announced a set of new products and services designed to help customers to create their own e-business on demand operating environments.

The new offerings provide integration, virtualization, automation and flexibility, the critical attributes of an on demand environment. The offerings include:

- TotalStorage virtualization family: a suite of storage virtualization products that will make it easier and cheaper for businesses to run and administer storage environments. The offerings allow any server to use or access information on any storage server in a network, significantly boosting utilization rates.

- A WebSphere solution which applies grid computing capabilities to virtualize application management. For the first time, advanced grid virtualization technology will be available through the industry's leading infrastructure software.

- New delivery options which let customers acquire all or part of their infrastructure requirements for a single monthly price, allowing them to substitute new technologies as needed. Called Open Infrastructure Offering, it allows customers to save money and better adapt their IT environments to changing business requirements.

- Standby Capacity On Demand offerings for blade servers and storage systems. Customers now can purchase a fully configured blade or storage systems for a fraction of the total cost and then turn on additional capacity over a six-month period.

- Web Server Provisioning, one of a new class of automation offerings that leverage the advanced technologies being developed as part of IBM's autonomic computing strategy. Customers can switch or add another server to increase capacity immediately. The solution automatically configures all the necessary software and hardware resources in a given environment, provisioning a server and balancing the load in minutes.

Chart #18: On Demand: Integrated Supply Chain

Now I'm going to take you through some **examples where we feel we're getting closest to bringing it all together**. The integration across the value net, the responsive, variable, focused and resilient characteristics in an increasingly on demand operating environment. Let's start with the integrated supply chain.

The Integrated Supply Chain has been one of the initial processes we've focused on, and an area where we've already made dramatic improvements through e-business technologies.

- Building on successes in the enterprise integration phase of e-business, **we have been focused on building on demand capabilities that cuts across many processes -- from product development, procurement, planning, and manufacturing to order management, distribution and after sales service, support and financing.**
- We are doing what all enterprises do to realize the maximum benefit of on demand computing -- we are taking vertical processes and flipping them horizontally. **By flipping them and operating them seamlessly, unnecessary cost is eliminated, and the enterprise becomes much more responsive to fluctuations**.

- Our PC business demonstrates the potential savings and productivity improvements available from an on demand supply chain.

- The challenge: In the PC industry, 95 percent of the price of a product is in the cost of components. On average, the price of components drops about one percent a week. Holding a PC in inventory costs IBM 66 cents a day. **When you factor in the amount of components you need to ship millions of PC's a year, this adds up to total inventory costs of $100,000 a day.**

- The **solution is to adopt a variable cost model and develop a network of alliances that allow for touchless manufacturing**. We transact business directly with customers' and business partners' procurement organizations (through custom portals), and ship the product without touching it. All associated processes -- manufacturing, distribution, etc. -- are provided by our partner.

- Our customers pay us before we pay our suppliers.

- By flipping formerly siloed processes on their side and integrating supply chain into a seamless system, we took $5 billion in cost and expense out of the business in 2002, and are positioned to take $5 billion more out in 2003.

- About half the savings comes from reductions in end-to-end systems hardware product cost and expense: ($2.5B)
- A quarter comes from customer solutions procurement cost: ($1.5B) (Procurement that goes into solutions for our customers).
- A quarter from reductions in general procurement cost: ($1.3B).*
- E-procurement contributes significantly to our overall savings in transforming this process. *$450M was saved in 2002 directly from efficiencies gained from e-procurement -- electronic applications IBM deploys over the Internet to reduce transaction costs.

Chart #19: 300 mm Semiconductor Facility

Another place where we're getting closer to a complete on demand environment is at our new 300 mm chip-manufacturing plant in East Fishkill. This state-of-the-art plant is a perfect example of an on demand manufacturing facility.

- It's touchless, largely automated;
- First chip-making plant to run on Linux;
- It's sense and respond - to changes in orders and chip configurations;
- It's able to accept a new batch of materials and build to order.

With this facility, IBM has taken the next bold step in its advanced technology strategy. The plant, which opened last August, is a $3B semiconductor "fab" facility that will produce industry-leading circuitry for IBM and its customers.

The new IBM Center for Nanoelectronics will, for the first time anywhere, employ 300 mm wafer technology to produce standard and custom chips using IBM-invented technologies like copper wiring, silicon-on-insulator, and low-k dialectric technology.

The facility offers a number of **e-business on-demand benefits**:
"Touchless Manufacturing"

- Cycle time and process yield improvements
- Direct labor spending benefit
  - Directs per wafer start 50% lower in 300mm vs 200mm driven by systems automation

Chart #20: On Demand Workplace

We know that real, sustainable transformation can't happen unless it's supported by cultural change.

Our corporate intranet, **w3, has become the central nervous system of our enterprise**, and the foundation of the cultural change we're talking about as we begin to make new, seamless, horizontal connections across IBM.

Unlike previous models for corporate intranets, where employees needed to find and seek out information on various web sites throughout the enterprise, **information and tools are now delivered to employees based on the specific, individual roles they play in the corporation**.

w3 has evolved into far more than a communications medium. It is **a fully integrated platform that has become the locus for work and the movement of ideas**, and the place where our workforce goes to access knowledge, expertise, information and tools -- on demand.

- Our workforce surveys tell us that **w3 has surpassed all other channels** -- including the grapevine -- as employees' preferred source of information about IBM. In fact, it equals "my manager" and "co-workers" *combined*.
- Two-thirds of employees rate the intranet as a tool that is **critical to do their job**, and almost the same number say it **saves them time on the job**.
- Nine out of 10 US employees **enroll for health benefits** via the intranet.
- Three quarters of IBM's **expense accounts flow through this system**.
- Over the past two years, IBM has avoided nearly three-quarters of a billion dollars in costs through its e-learning courses for employees.
- IBM has pioneered at the frontiers of **online collaboration via w3Jams**. World Jam, ManagerJam, ConsultantJam and ValuesJam are mass events that captured best practices, drove innovation and culture change, and generated new learning.
- w3 has spawned a successful and **growing practice and offering suite -- the IBM On Demand Workplace**.

Chart #21: Grid computing

- Within IBM, we've been rapidly adapting the on demand technologies we bring to market to improve our own IT infrastructure. We've got some excellent examples of on demand already within the company.

- Let me start with something you've probably heard about, and which is a key part of any On Demand Operating Environment, and that is Grid Computing.

- At its core, Grid Computing **enables devices--regardless of their operating characteristics--to be virtually shared, managed and accessed across an enterprise, industry or workgroup**.
- This virtualization of resources places all of the necessary access, data and processing power at the fingertips of those who need to rapidly solve **complex business problems, conduct compute-intensive research and data analysis in real-time**.

Within IBM we are pursuing a number of internal Grid initiatives:

Research and Development: We have constructed an intraGrid inside IBM. At the moment there are 66 R&D projects that are drawing on the shared computing resources offered by the Grid. This removes the constraints that come with using traditional siloed computing resources and allows research to progress at a faster pace.

Engineering and Design: IBM's Systems and Technology groups **use Grid technologies to design our latest microprocessor technologies using pools of compute resources** to support chip design and chip verification simulations.

Enterprise Optimization: The **eServer Benchmark Centers host customer projects to demonstrate a specific capability of our server technology**. Very often the demo requires a proof of scalability. To achieve the capacity needed, we put drivers in Austin, Poughkeepsie and Rochester in a Grid and used them for the largest scale-ups needed.

Smallpox Project: IBM employees have been participating in a global Grid research effort to develop new drugs that for the first time would combat the smallpox virus after infection. They have been **participating by virtually "donating" the unused processing and storage capacity of their computers**.

IBM Solutions Grid for Business Partners: This is a Grid environment that virtualizes part of our internal infrastructure and allows independent software vendors to run their Grid applications in a simulated real-world distributed computing environment. This will enable Partners to deliver Grid-enabled solutions to customers faster -- without the upfront costs of building their own infrastructure.

Chart #22: Next Generation Infrastructure

Next Generation Infrastructure will be another important piece of IBM becoming an on demand business when it powers up toward the end of this year. **IBM itself will be the first to use this new infrastructure**.

- IBM Global Services is preparing this first on demand infrastructure that will be capable of **providing computing services as an e-utility**.
- Using the analogy of our electrical utilities NextGen provides a "MIPs (processing) and GIGs (storage)" power plant for our customers and IBM.
- Customers will be able to **order compute services on demand and pay only for the resources they actually consume**.
- The Next Generation infrastructure is managed by our e-Business On Demand Utilities Management Infrastructure (UMI) tool set to be able to provide this utility. The UMI provides advanced systems management capability and positions IBM as the leader in this e-utility marketplace.
- We forecast that Next Generation infrastructure will provide a **10% - 40% cost savings** over similar traditional infrastructures and services.

Chart #23: Worldwide Command Centers

- Today through two Worldwide Command Centers, staffed 24/7, e-business processes can now be **monitored end-to-end.**

- Through a combination of process and organizational reengineering, as well as implementation of IBM's Tivoli software, the company has been able to gain a **big-picture view of the availability of critical e-business processes**

- For example, let's look at the availability of IBM's **Personal Systems Group** e-business process. The availability of the process **depends on information from more than a hundred different applications located on hundreds of servers** that are situated in various data centers worldwide.

- With the worldwide command centers Personal Systems Group **critical e-business processes are managed as one entity**. As you can see, the potential returns that come from this kind of on demand transformation can be quite significant.

This is an area where we expect to make more progress, especially in terms of the **autonomic capabilities** that can be built into this type of monitoring.

Chart #24: Lessons Learned

- As we continue on the transformation path, we are actively turning our e-business experience into e-business insights that can be leveraged by customers. **By "eating our own cooking**," and with the **knowledge gained by thousands of e-business engagements**, we are well **prepared to help our customers.**

- Some of the lessons we have learned include:

- **Transformation is hard work.** Retooling your enterprise requires a lot of thought and effort, but it can be done. It's hard work, but it's worth it. Just look at how far we've come in the last ten years. And today we're making progress at a faster rate. IBM is living proof that you can get better at transformation the more you work at it.

- **We've only begun to realize the benefits of e-business:** Throughout the rise and fall of the dot-coms, the essential truth -- that the payoff for e-business investments is real -- has remained unchanged. What's more, the business value we realized in the "access" and "enterprise integration" phases of e-business pale in comparison to the benefits we will realize from on demand e-business, which will deliver unprecedented bottom-line profit, top-line sales and reach to customers, partners, suppliers and employees.

- **To stay competitive, we must transform IBM into an on demand enterprise:** The organizations who move first will have enormous competitive advantage over those who are slow to adapt.

- **Revamping the infrastructure is only part of the challenge:** The really tough part is changing management mindset and ingrained business thinking. By flipping vertical systems on their sides, on demand business challenges long-held notions about organization and hierarchy. Separating information from communication and workflow systems from their traditional homes in vertical organizations is hard and painful. Yet "silo" thinking and obsession with control are show-stoppers for creating an on demand business.

- **Through outsourcing, we can focus on what we do best:** An on demand business will concentrate on its core competencies, tasks and assets, and will outsource selected non-differentiating tasks to partners. IBM's experience in utilizing the business insight of IBM Global Services, like that of many of the company's customers, demonstrates the inherent payoff of leveraging core competencies of other service providers.

- **On demand computing is the fusion of business process transformation and IT, changing not just business strategy, but business behavior:** The move to on demand will happen because the value proposition is overwhelming. Transforming processes begets new IT enablement needs. The fusion of business process transformation with powerful IT tools and a culture committed to excellence will result in industry leadership.

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